

## ZEUS – HLONS (HMMWV Laser Ordnance Neutralization System)

### LASER NEUTRALIZATION OF SURFACE LANDMINES AND UNEXPLODED ORDNANCE

ZEUS-HLONS is a solid-state laser system that allows the effective stand off engagement capability up to 200 meters from the system of surface munitions targets. ZEUS is mounted on an uparmored High-Mobility Multi-purpose Wheeled Vehicle (HMMWV) sometimes called a HUMVEE.

To date, more than 800 targets have been destroyed by ZEUS-HLONS during four separate tests. These tests included successful operations during heavy rain and in extreme heat.

Development of such a tool has multi-service interest. The U.S. Army Space and Missile Defense Command is working to upgrade the system to a kilowatt-class laser. An advantage to using a laser to neutralize munitions is its large magazine; it uses diesel fuel to create the laser beam; ultra precision, assured neutralization, safe stand off, and controllable effects with reduced collateral damage.

The laser works by being focused on the outer casing of the target. This heats the explosives with the casing until it is destroyed by internal combustion. The combustion created by the laser produces low-level detonations compared to the explosive power designed into landmines and unexploded ordnance (UXO). The advantage is reduced risk to personnel clearing the ordnance and less physical damage to the surrounding area. With main supply route clearance as a likely mission for ZEUS-HLONS, reducing the amount of crater damage to roads and bridges is a major step toward force protection and sustainment for the Objective Force.

During hostile actions, surface laid landmines and UXO such as conventional and cluster bombs, artillery and mortar rounds, and rifle grenades pose a great hazard for our soldiers and allies. For many years, UXO has also caused death and injury to civilian populations. Developed for the U.S. military, ZEUS-HLONS will a new capability as part of the counter UXO teams toolkit used to neutralize these explosive hazards.

Other possible missions for ZEUS-HLONS include:

- Clearing active and test training ranges of exposed landmines and UXO
- Clearing airport tarmacs and runways
- Clearing UXO from battlefields or during peacekeeping missions
- Clearing UXO from Former Used Defense Sites and Base Realignment and Closure Sites
- Humanitarian clearing of landmines

The laser system includes a color camera for locating targets, a visible laser for targeting the co-boresighted invisible low-power laser on an aim point. The system can locate its own targets using the zoom lens camera. It also has the potential to accept targeting coordinates from airborne platforms using Global Positioning System data.

The crew can engage targets on a find-shoot basis using a joystick control system, or it can search an area, store targeting coordinates, and destroy targets in a series using the system-aided map. If destroying targets in a series, the computer system will automatically slew from a destroyed target to the next where the operator will fine tune targeting before firing. Automatic targeting increases the rate of engagement and provides a record of neutralization verification.

**For more information, please contact:**

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